

# **Missouri Spring Rise – Natural Hydrograph Alternative**

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**Hydrology/Water Quality Technical Group**

**Missouri River Plenary Meeting**

**July 26, 2005**

# Natural Hydrograph Alternative

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## a. Number of Rises

Two Rises



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## b. Flood Control Targets/Constraints

Add the magnitude of the spring rise to the downstream flood control constraints during the spring rise period



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## c. First Rise

### i. Timing

Mimic the historic hydrograph



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## c. First Rise

### ii. Duration and rise and fall rates

- Rise rapidly
- Peak
- Fall at a rate of 1,500 cfs/day



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## c. First Rise

### iii. Magnitude

- 30,000 cfs above winter service levels



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## d. Flows between rises

Use Master Manual curves



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## e. Second Rise

### i. Timing

- Mimic the historical hydrograph



# Natural Hydrograph Alternative

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## e. Second Rise

### ii. Duration and rise and fall rates

- Rise rapidly
- Peak
- Drop 30%, then draw out declining limb



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## e. Second Rise

### iii. Magnitude

- 30,000 cfs above navigation service levels every third year
- 26,000 cfs above navigation service levels other years



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## f. How to address water availability and variation for wet, normal, and dry years

- Allow for evacuation mode when system storage is greater than 58.5 MAF



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## g. Volume of Water Used

Uses an additional 2.0 MAF compared to  
Current Water Control Plan



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## h. Proposal Flexibility

- Allow the Corps to make releases that approximate the lower third 75<sup>th</sup> percentile



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Questions?